SEQUENCE LISTING

<110> ZHANG, HUANMIN

AX, ROY L

BELLIN, MARY E

<120> ISOLATED POLYNUCLEOTIDE SEQUENCES ENCODING A FERTILITY ASSOCIATED ANTIGEN

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<150> US 60/218,140

<151> 2000-07-14

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<170> PatentIn version 3.1

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ctc tat aaa gaa aag cta gtg tct gta aaa caa agc tac ctc tac cac 144
Leu Tyr Lys Glu Lys Leu Val Ser Val Lys Gln Ser Tyr Leu Tyr His
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gac tat cag gct gga gac gca gat gtg ttt tcc agg gaa ccc ttt gtg 192
Asp Tyr Gln Ala Gly Asp Ala Asp Val Phe Ser Arg Glu Pro Phe Val
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gtc tgg ttc cag tca ccc tac acc gct gtc aag gac ttc gtg att gtc 240
Val Trp Phe Gln Ser Pro Tyr Thr Ala Val Lys Asp Phe Val Ile Val
65 70 75 80

ccc ctg cac acc acc cct gag aca tcc gtt aga gag att gat gag ctg 288
Pro Leu His Thr Thr Pro Glu Thr Ser Val Arg Glu Ile Asp Glu Leu
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gct gat gtc tac aca gat gtg aaa cgt cgc tgg aat gca gag aat ttc 336
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Tyr Asp Arg Ile Val Leu Arg Gly Gln Asn Ile Val Asn Ser Gly Gly
165 170 175

cct caa tca aac ctc gtc ttt gat ttc cag aaa gct tac agg ttg tct 576
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145                 150                 155                 160

Tyr Asp Arg Ile Val Leu Arg Gly Gln Asn Ile Val Asn Ser Gly Gly
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ttctctataa agaaaagcta gtgtctgtaa aacaaagcta cctctaccac gactatcagg     180
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ccgctgtcaa ggacttcgtg attgtccccc tgcacaccac ccctgagaca tccgttagag     300
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tcaactctgg tggtcctcaa tcaaacctcg tctttgattt ccagaaagct tacaggttgt     600
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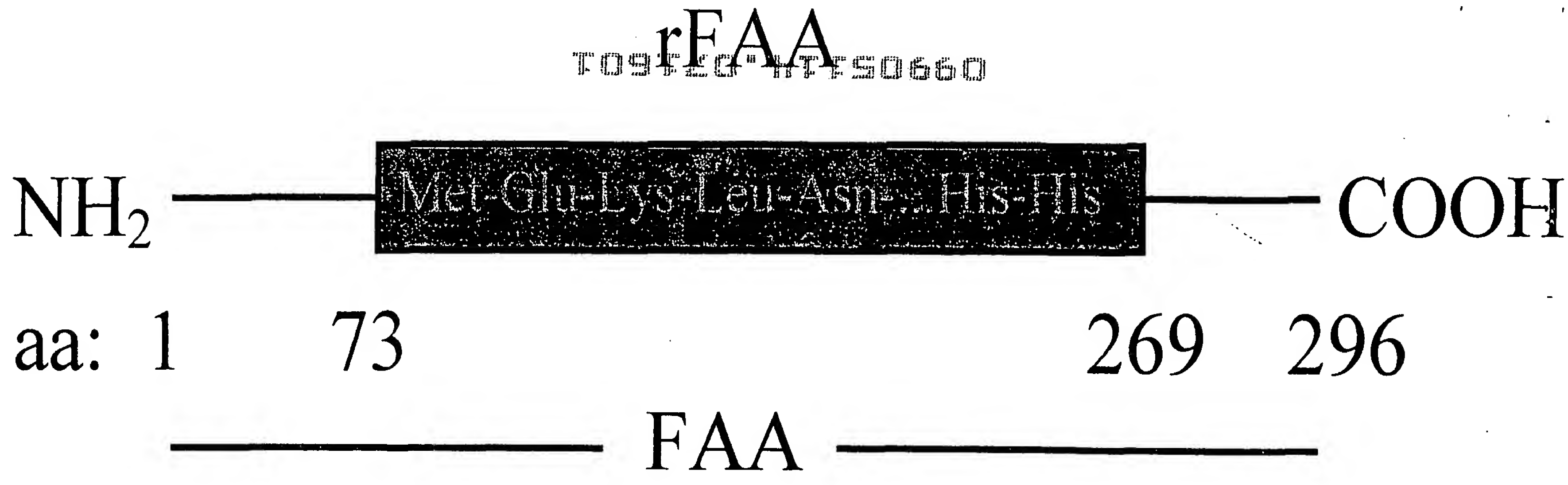

Figure 1. Depicted recombinant FAA (rFAA), produced from cloned partial cDNA of bovine FAA gene in E. coli, showing the comparative position of the segment corresponding to intact bovine FAA.

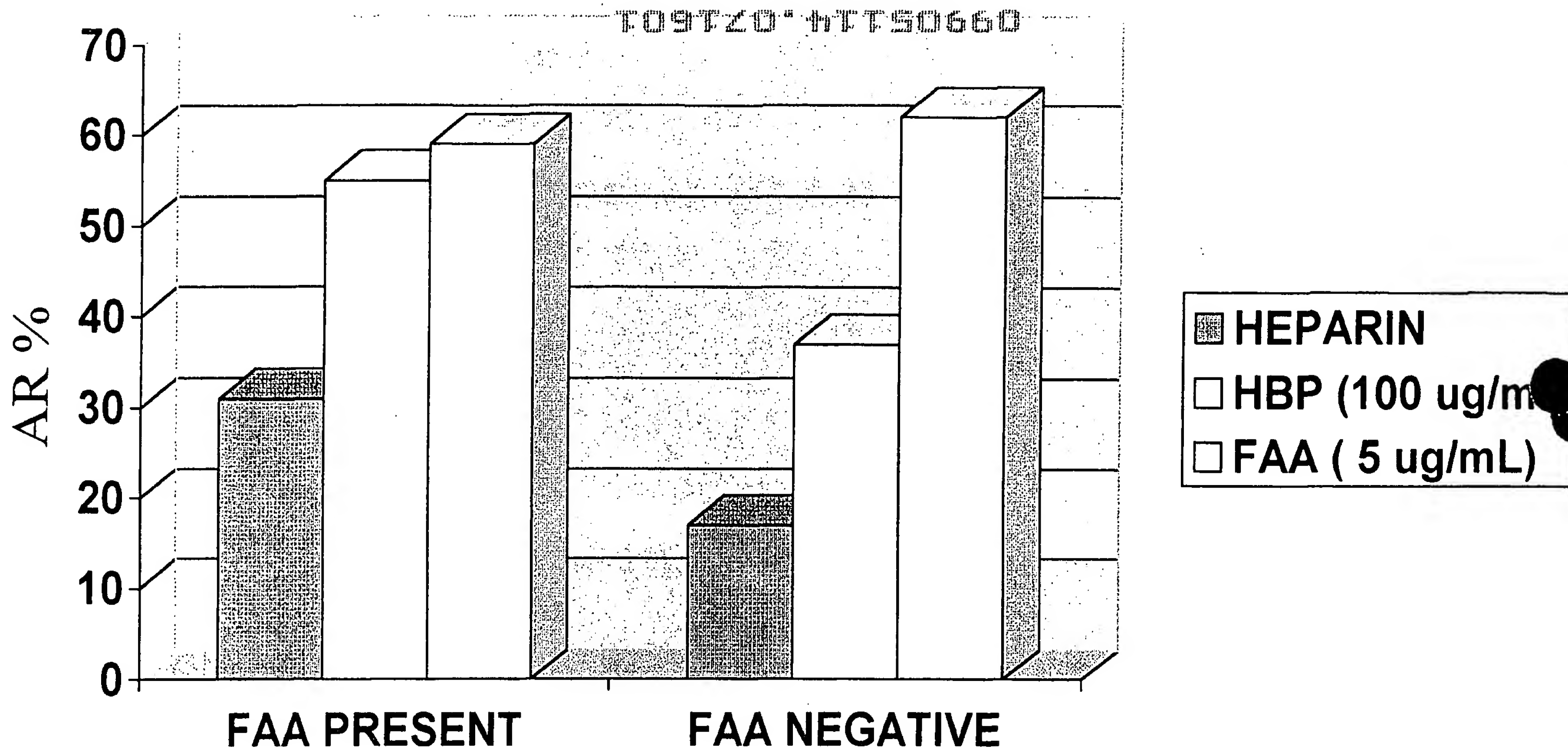

Figure 2. Percent increase in acrosome reaction for each treatment above the control level. FAA present represents a fertile bull with detectable FAA on sperm and FAA negative represents a non-fertile bull without detectable FAA on sperm. The fertile bull (FAA present) reacted better to heparin induction of capacitation/acrosome reactions. Addition of FAA (5 ug/mL) stimulated maximum increase of acrosome reactions for each bull.

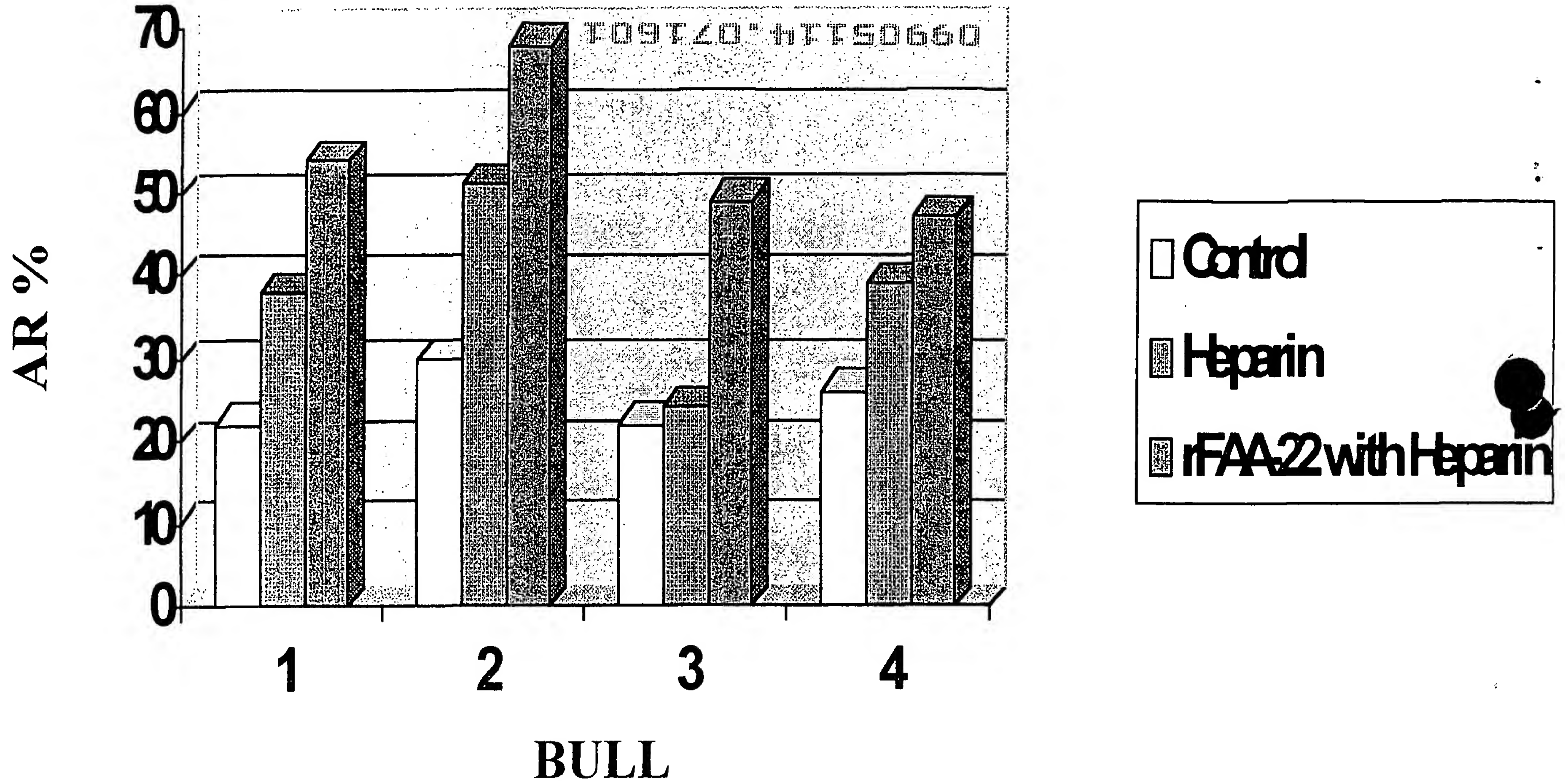

Figure 3. Effects of heparin alone (10 µg/ml) or recombinant FAA (rFAA, 20 µg/ml) with heparin to stimulate acrosome reaction in washed sperm from four fertile bulls.

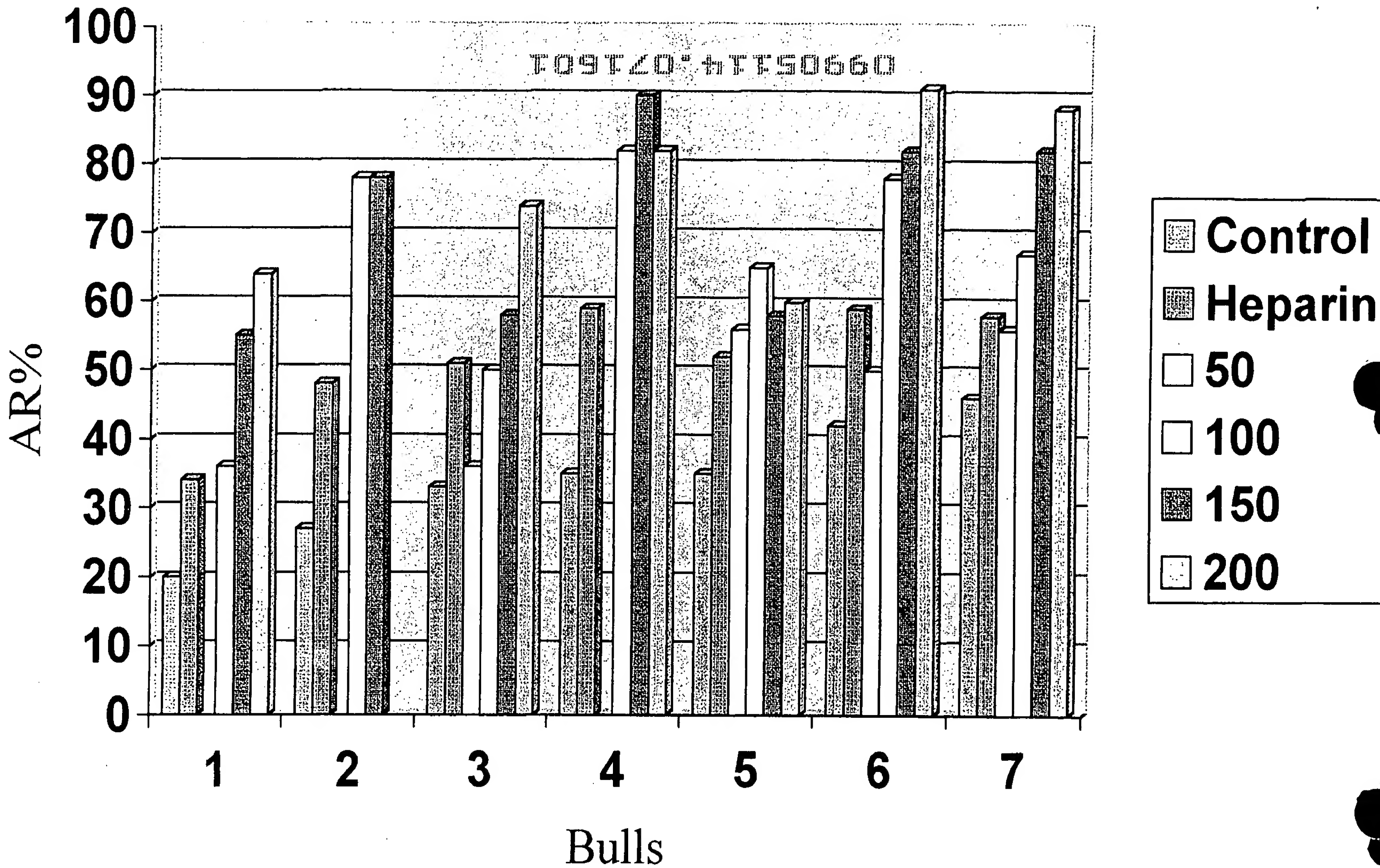

Figure 4. Dose-response comparisons (µg/ml) of the 22kDa recombinant FAA (rFAA) added with heparin (10 µg/ml) to washed sperm. Averages from two to five different ejaculates are presented as each datum point for each bull.

Thursday, July 06, 2000

1 ACAACAGGAT CTGCCCCATA CTG**ATGGAGA AGCTAAACGG AAATTCAAGA**

51 **AAAGGCATAA CATACAACTA TGTGATTAGC TCTCGCCTTG GAAGAAACAC**

101 **ATATAAAGAA CAGTATGCCT TTCTCTATAA AGAAAAGCTA GTGTCTGTAA**

151 **AACAAAGCTA CCTCTACCAC GACTATCAGG CTGGAGACGC AGATGTGTTT**

201 **TCCAGGGAAC CCTTTGTGGT CTGGTTCCAG TCACCCTACA CCGCTGTCAA**

251 **GGACTTCGTG ATTGTCCCCC TGCACACCAC CCCTGAGACA TCCGTTAGAG**

301 **AGATTGATGA GCTGGCTGAT GTCTACACAG ATGTGAAACG TCGCTGGAAT**

351 **GCAGAGAATT TCATTTTCAT GGGTGACTTC AATGCTGGCT GCAGCTACGT**

401 **CCCCAAGAAG GCCTGGAAGG ACATCCGCCT GAGGACGGAC CCCAAGTTCG**

451 **TTTGGCTGAT CGGGGACCAA GAGGACACCA CGGTCAAGAA GAGCACAAAC**

501 **TGCGCCTATG ACAGGATCGT GCTTAGAGGA CAAAATATTG TCAACTCTGG**

551 **TGGTCCTCAA TCAAACCTCG TCTTTGATTT CCAGAAAGCT TACAGGTTGT**

601 **CTGAATCGAA GGCCCTGGAT GTCAGCGACC ACTTTCCAGT TCATCATCAT**

651 **CATCATCATG AAGAACCA**TG A

Notes: Upstream primer sequence;
Codon sequence responsible for the rFAA product;
Stop codon.

Figure 6

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5'        GAGAAGCTAAACGGAAATTCAAGAAAAGGCATAACATACAACTATGTGATTAGCTCTCGC
       1  ---------+---------+---------+---------+---------+---------+  60
a         E  K  L  N  G  N  S  R  K  G  I  T  Y  N  Y  V  I  S  S  R   -

          CTTGGAAGAAACACATATAAAGAACAGTATGCCTTTCTCTATAAAGAAAAGCTAGTGTCT
      61  ---------+---------+---------+---------+---------+---------+  120
a         L  G  R  N  T  Y  K  E  Q  Y  A  F  L  Y  K  E  K  L  V  S   -

          GTAAAACAAAGCTACCTCTACCACGACTATCAGGCTGGAGACGCAGATGTGTTTTCCAGG
     121  ---------+---------+---------+---------+---------+---------+  180
a         V  K  Q  S  Y  L  Y  H  D  Y  Q  A  G  D  A  D  V  F  S  R   -

          GAACCCTTTGTGGTCTGGTTCCAGTCACCCTACACCGCTGTCAAGGACTTCGTGATTGTC
     181  ---------+---------+---------+---------+---------+---------+  240
a         E  P  F  V  V  W  F  Q  S  P  Y  T  A  V  K  D  F  V  I  V   -

          CCCCTGCACACCACCCCTGAGACATCCGTTAGAGAGATTGATGAGCTGGCTGATGTCTAC
     241  ---------+---------+---------+---------+---------+---------+  300
a         P  L  H  T  T  P  E  T  S  V  R  E  I  D  E  L  A  D  V  Y   -

          ACAGATGTGAAACGTCGCTGGAATGCAGAGAATTTCATTTTCATGGGTGACTTCAATGCT
     301  ---------+---------+---------+---------+---------+---------+  360
a         T  D  V  K  R  R  W  N  A  E  N  F  I  F  M  G  D  F  N  A   -

          GGCTGCAGCTACGTCCCCAAGAAGGCCTGGAAGGACATCCGCCTGAGGACGGACCCCAAG
     361  ---------+---------+---------+---------+---------+---------+  420
a         G  C  S  Y  V  P  K  K  A  W  K  D  I  R  L  R  T  D  P  K   -

          TTCGTTTGGCTGATCGGGGACCAAGAGGACACCACGGTCAAGAAGAGCACAAACTGCGCC
     421  ---------+---------+---------+---------+---------+---------+  480
a         F  V  W  L  I  G  D  Q  E  D  T  T  V  K  K  S  T  N  C  A   -

          TATGACAGGATCGTGCTTAGAGGACAAAATATTGTCAACTCTGGTGGTCCTCAATCAAAC
     481  ---------+---------+---------+---------+---------+---------+  540
a         Y  D  R  I  V  L  R  G  Q  N  I  V  N  S  G  G  P  Q  S  N   -

          CTCGTCTTTGATTTCCAGAAAGCTTACAGGTTGTCTGAATCGAAGGCCCTGG        3'
     541  ---------+---------+---------+---------+---------+-- 592
a         L  V  F  D  F  Q  K  A  Y  R  L  S  E  S  K  A  L   -
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